CLAIMS

What is claimed is:

1. A method for determining the *Phytophthora sojae* resistance associated with the trait locus *Rps*8 in soybean, comprising:

analyzing genomic DNA from a soybean germplasm for the presence of at least one molecular marker, wherein the at least one molecular marker is associated with the trait locus *Rps*8, and wherein the trait locus *Rps8* maps to soybean major linkage group F and is associated with soybean *Phytophthora sojae* resistance.

2. The method of claim 1 wherein the at least one molecular marker is selected from the group consisting Satt595, Satt114, Satt334, Sat_317, Sat_197, Satt510, Satt335 and Satt144.

3. The method of claim 2 wherein the at least one molecular marker is markers Satt516 and Satt114.

4. A method for introgressing soybean *Phytophthora sojae* resistance into non-resistant soybean germplasm or less resistant soybean germplasm comprising:

providing a first soybean germplasm which has *Rps8*-derived resistance to *Phytophthora sojae* and which has been selected by marker assisted selection using one or more nucleic acid markers, wherein the soybean *Phytophthora sojae* resistance is associated with the *Rps*8 gene that maps to soybean major linkage group Fand wherein the molecular markers are associated with the *Rps*8 gene;

providing a second soybean germplasm which lacks *Rps8*-derived resistance to *Phytophthora sojae;*

crossing the first soybean germplasm with the second soybean germplasm to introgress the *Rps8* gene into the genome of the second soybean germplasm to provide a hybrid introgressed germplasm having *Rps8*-derived resistance to *Phytophthora sojae.*

5. The method of claim 4 wherein the first soybean germplasm is HFX01-602, or a descendant thereof.

6. The method of claim 4 wherein the first soybean germplasm is OX-99128, or a descendant thereof.

7. The method of claim 4 wherein the first soybean germplasm is OX-98317, or a descendant thereof.

8. The method of claim 4 wherein the first soybean germplasm is selected by a marker assisted selection technique selected from the group consisting of SSR analysis, RFLP analysis, RAPD analyis, and isozyme analysis.

9. The method of claim 4 wherein the nucleic acid markers are selected from the group consisting of. Satt595, Satt114, Satt334, Sat_317, Sat_197, Satt510, Satt335 and Satt144

10. A method for the production of a soybean cultivar adapted for conferring, in hybrid combination with a suitable second inbred, resistance to *Phytophthora sojae* comprising:

selecting a first donor parental line possessing the desired *Phytophthora sojae* resistance said first donor parental line comprising a *Phytophthora sojae* resistance gene *Rps*8 which is located on major linkage group F;crossing the first donor parental line with a second parental line, which is high yielding in hybrid combination, to produce a segregating plant population of genetically heterogeneous plants;

screening the plants of the segregating plant population for the gene *Rps*8 by marker assisted selection using at least one associated markers;

selecting plants from the population having the gene *Rps*8; and

breeding by self crossing the plants containing the *Rps*8 gene until a line is obtained which is homozygous for resistance to *Phytophthora sojae* at *Rps*8 to give resistance to *Phytophthora sojae*.

11. The method of claim 10 wherein the at least one associated marker is selected from the group consisting of. Satt595, Satt114, Satt334, Sat_317, Sat_197, Satt510, Satt335 and Satt144

12. The method of claim 10 wherein the molecular markers are Satt595, Satt114, Satt334, Sat_317, Sat_197, Satt510, Satt335 and Satt144.

13. The method of claim 10 wherein the first donor parental line is HFX01-602, or a descendant thereof.

14. The method of claim 10 wherein the first donor parental line is OX-99128, or a descendant thereof.

15. The method of claim 10 wherein the first donor parental line is OX-98317, or a descendant thereof.

16. The method of claim 10 wherein the plants of the segregating plant population are screened by a marker assisted selection technique selected the marker assisted selection comprises analyzing by a technique selected from the group consisting of, SSR analysis,.

17. A method for reliably and predictably introgressing soybean *Rps8*-derived resistance to *Phytophthora sojae* into susceptible soybean germplasm comprising analyzing soybean germplasm lines by marker assisted selection to identify those soybean germplasm lines having the *Rps8* gene; and introgressing said *Rps8* gene into said non-resistant soybean germplasm.

18. The method of claim 18 wherein markers for use in marker assisted selection are selected from the group consisting of._Satt595, Satt114, Satt334, Sat_317, Sat_197, Satt510, Satt335 and Satt144.

19. .The method of claim 18 wherein the marker assisted selection comprises the use of SSR analysis.

20. .A soybean plant produced according to the method of any one of claims 1-22.

21. A soybean plant having resistance to *Phytophthora sojae* comprising:

a soybean germplasm comprising an *Rps8* gene

wherein the germplasm was produced by introgression of a soybean germplasm containing *Rps8* in its genome with a soybean germplasm lacking the *Rps8* gene in its genome.

22. Seed of soybean germplasm designated HFX01-602, deposited as ATCC accession number PTA-5190, and progeny therefrom

23. Seed of soybean germplasm designated OX-98317, deposited as ATCC accession number _____, and progeny therefrom..

24. Seed of soybean germplasm designated OX-99218, deposited as ATCC accession number _____, and progeny therefrom.